

A newly designed virtual tour of a Radiotherapy Department for improving patient experience –

initial staff qualitative evaluation

Introduction

- The Transforming Cancer Care Social Value WG was set-up to found a legacy in the Liverpool region during and beyond the construction of Clatterbridge Cancer Centre Liverpool (CCCL), which opened in summer 2020. Within the 'Project Innovation' work stream, local level 3 computer science students used their industry work experience to develop further digital assets for the CCCL Trust; one part of which was the development of a digital welcome application or virtual open event (virtual tour) for enhancing patient experience, using the actual Computer Aided Design (CAD) materials used for the construction of CCCL.
- Patients who are fully informed and communicated with on their healthcare journey are likely to be more relaxed and less anxious; with evidence suggesting that practical aspects of attending for radiotherapy and knowing what to expect prior to treatment are very important to them¹⁻⁴. Open evenings or pre-visits to the department can help reduce anxiety and distress levels, by offering greater information support⁵⁻⁷. In recent times, virtual and digital methods have been used – which is the approach we have taken here.
- The initial design and service evaluation of this virtual tour with patients has been undertaken⁸. With the knowledge that Therapeutic Radiography (TR) staff every day are the natural eyes and ears for capturing the patient voice on their experience of the RT pathway, as part of the initial evaluation, we here report the responses from staff focus groups conducted at CCCL.

Methods

Virtual Tour Design

Laing O'Rourke provided the CAD files facilitating the creation of the virtual environment in a game engine (Unreal Engine 4, Epic Games), enabling students to develop lighting, reflections and general mechanics for the virtual tour.

The Avatar was developed using Character Creator 3 and their uniform recreated using Marvellous Designer software; both were based on a male TR from CCCL. Motion capture facilities at City of Liverpool College were used to generate true-to-life movement and gestures.

The audio script was developed by two TRs and patient representatives from a real walk-through of the actual patient pathway. Recording was undertaken at City of Liverpool College and synchronised with motion capture.

Approval

Approval for the service evaluation was sought and granted through the CCCL Trust's Clinical Audit Sub-committee

Service Evaluation

The virtual tour was evaluated by patients using a mixed-methods approach survey, designed on the Jotform survey platform. Control (n=9) and intervention (n=14) groups were established – the latter asked to complete the survey after watching the virtual tour⁸. Simultaneously, staff focus groups were conducted (n=17) using open-ended questions to gather feedback on the virtual tour.

References

1. Sothill et al. *Health Soc Care Community* 2001;9(6):464-475
2. Sothill et al. *Eur J Oncol Nurs* 2003;7(1):5-13
3. Hudson et al. *J Palliat Med* 2004;7(1):19-25
4. Mann and Ford. *Synergy: Imaging and Therapy in Practice* Apr 2011
5. Hutton and Fairclough. *Synergy: Imaging and Therapy in Practice* May 2012
6. David and Lowrey. *Radiography* 2021;27:847-853

Results & Discussion

- Figures 1 and 2 are stills from the virtual tour showing the main patient entrance and waiting area at CCCL with the TR avatar.



Figure 1

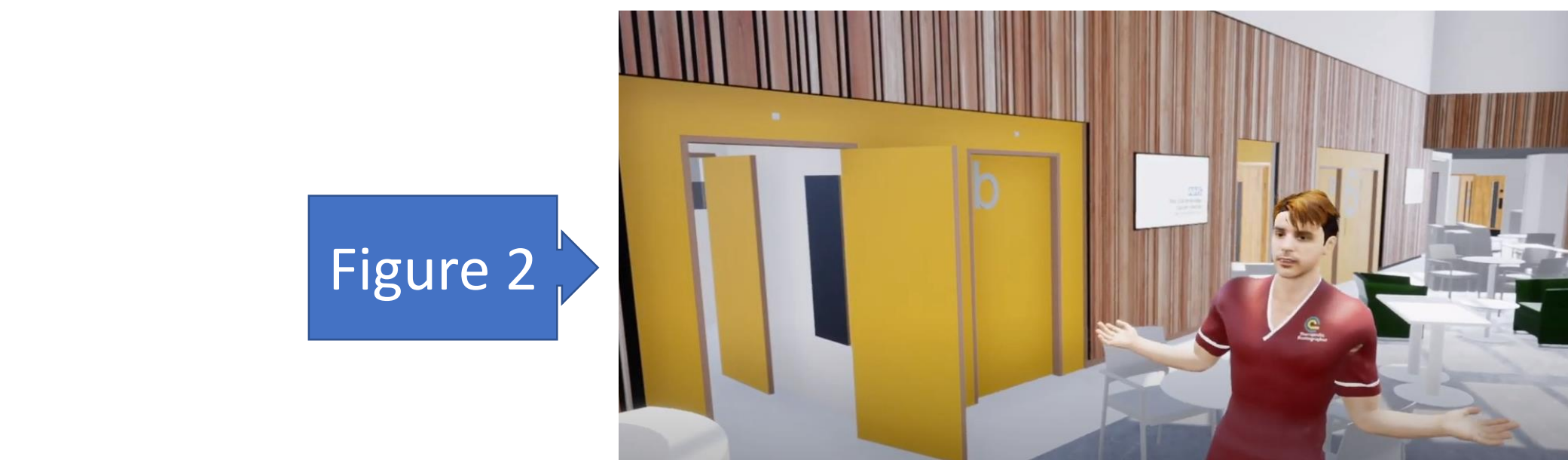


Figure 2

1. Presentation

"I like that the avatar is wearing our uniform so patients know what to expect"; "It feels interactive for patients"

"I like the background music"; "The app is very personable, because you see a real person; like you are talking to someone"; "There is just enough information, delivered at a good pace"

2. Specific Information

"I like that it shows you the treatment room, very informative"; "Good that it shows you where to get a hot drink, patients might not think they could use it"

3. General

"Removes fear of unknown for patients"; "I think it is a good alternative to patient open evenings"

- All (100%) felt the virtual tour would be a positive addition to the patient's journey. Qualitative results (above) were positive. Overall presentation was very positively evaluated, highlighting the background, music, the personable nature of the app with a highly realistic avatar, in the uniform actually worn by CCCL staff, and with the avatar 'speaking' in a regional accent. Information was delivered at a good pace with a nice interactive feel. Specific information was well covered, highlighting practical matters like where to get a hot drink, the inside of the changing rooms (fig 3) and the treatment room (fig 4); helping patients know exactly what to expect within the department. All contributed to a general impression of helping to remove the fear of unknown for the patients - a good alternative to patient open evenings.

Results & Discussion ctd.

Figure 3



Figure 4



- It was clear the staff were highly engaged with the virtual tour, in the suggestions for how the media could be further used and improved. These included addition of subtitles; expanding the 'reach' to highlight transport, phlebotomy and pharmacy services; linking to Macmillan and Chemotherapy suites; extending into pre-treatment and brachytherapy areas and even showing how the actual treatment works.

Conclusions

- This initial service evaluation with staff focus groups has been highly positive – nicely complementing the initial patient responses which, for example, showed reductions in anxiety and improvements in confidence and knowledge in practical matters (such as queue and changing room systems) as well as generally knowing better what to expect through to the treatment room⁸. Staff were highly complementary and engaged with the virtual tour; enthused enough to suggest further improvements and developments using the virtual design media. The staff responses fully complement the introduction of the virtual tour as a foundation for providing further key information prior to treatment start, alleviating anxiety and improving the patient experience and all-round care at CCCL.

Acknowledgements

- The authors wish to thank all participants for their involvement in this service evaluation.

7. LancsHospitalsRadiotherapy. Fantastic Radiotherapy Open Information Morning. All patients reported a 100% decrease in treatment related anxiety and all would recommend attending. Thank you to all staff for giving up your Saturday and Macmillan & Rosemere Coffee Shop for Supporting this event.[Internet]. Feb 25, 2023 [cited Mar 2, 2023]; Available from: <https://twitter.com/LancsHospRT/status/1629481931191582720?t=WDaYyAGMOGspDrTp8Vh0vQ&s=09>
8. Hutton et al. Submitted to *Radiography* Dec 2022